

PATENT

Serial No.: 09/769,699
Atty. Dkt. No. SAR 13896**REMARKS**

This is intended as a full and complete response to the Office Action dated December 23, 2004, having a shortened statutory period for response set to expire on February 23, 2005. Please reconsider the claims pending in the application for reasons discussed below.

I. Rejection of claims 1, 4, 8, 11, 12 and 15-25 under 35 USC § 103

Claims 1, 4, 8, 11, 12 and 15-25 stand rejected under 35 USC § 103(a) as being obvious over Courtney (U.S. Patent No. 5,969,755 issued October 19, 1999) in view of Gran et al. (U.S. Patent No. 5,416,711 issued May 16, 1999). Applicant respectfully disagrees.

The Examiner states that Courtney teaches segmenting foreground motion from a background of a video image sequence. The Examiner admits that Courtney does not teach determining routes of objects in the video. The Examiner cites Gran as disclosing a "traffic corridor" and a "number of vehicles in queue" within the traffic corridor. The Examiner interprets the traffic corridor as a "trajectory" and the process for determining the number of vehicles in a queue within the corridor as determining a trajectory of one object having the same trajectory as another object, i.e., the vehicles in the queue are the objects. The Examiner concludes that a combination of the teachings of Courtney and Gran results in the Applicant's invention. The Applicants respectfully disagree.

More specifically, Courtney teaches motion extraction, but, as the Examiner concedes, Courtney does not teach route determination. Gran teaches a traffic monitoring system that analyzes imagery of a traffic intersection to determine the length of a vehicle queue at a traffic light. The timing of the light can be altered in response to the length of the queue. Any reasonable combination of Courtney and Gran would apply the motion extraction process to the images of the vehicles in the queue at the intersection. The purpose of such a combination is unclear.

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In contrast, the Applicant's invention extracts motion information from an image sequence, then determines spatial patterns from the motion information. These patterns represent trajectories of objects moving within the imaged scene. The invention determines when more than one object has the same trajectory as represented by the spatial patterns. Importantly, the extracted motion information leads to spatial patterns that represent the object trajectories. This use of motion information in this manner is not taught in either of the cited references whether taken singly or together.

Although the Applicants' believe the claims were clear as submitted, independent claims 1, 11, 15, 16 and 22 have been amended to specifically recite that "the spatial patterns represent trajectories of objects in the sequence of images".

The Examiner argued that the "traffic corridor" of Gran represented a "trajectory". Clearly such a corridor is not determined by the spatial patterns that are the result of extracting motion information from the images. The traffic corridor in Gran merely defines a frame of reference within which the vehicle queues are monitored. These traffic corridors are not related in any way to spatial patterns that are determined from motion information.

Therefore, the Applicants submit that the cited references, in any reasonable combination, do not teach or suggest the invention as recited in independent claims 1, 11, 15, 16 and 22. Furthermore, dependent claims 4, 8, 12, 17-21 and 23-25 depend directly or indirectly from claims 1, 11, 15, 16 and 22 and are patentable for the same reasons stated above.

II. Claims 3, 5, 6, 7, 9, 10, 13, 14

Claims 3, 5, 6, 7, 9, 10, 13 and 14 have been rejected using various combinations of Courtney and Gran in view of Koike (U.S. Patent No. 6,445,308), Krause (EP 740280A2) or Auty et al. (U.S. Patent No. 5,809,161).

Each of claims 3, 5, 6, 7, 9, 10, 13 and 14 depend either directly or indirectly from independent claim 1 or 11. As discussed above, neither Courtney nor Gran, or any reasonable combination of the additional references, teaches or suggests a method of determining routes using spatial patterns that represent object trajectories. Additionally,

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none of the references – Koike, Krause or Auty – taken in any reasonable combination with Courtney and Gran, teach or suggest the subject matter of claim 1 or 11. As such, dependent claims 3, 5, 6, 7, 9, 10, 13 and 14 are also patentable over these references.

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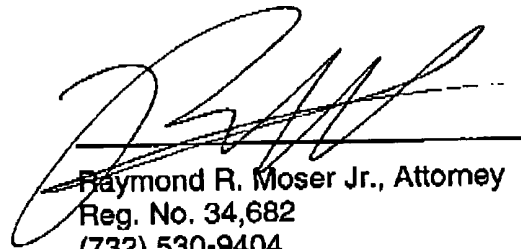
Conclusion

Thus, the Applicant submits that all of these claims now fully satisfy the requirements of 35 U.S.C. §103. Consequently, the Applicant believes that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring the maintenance of a final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Raymond R. Moser Jr., Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

2-23-05
Date


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